

CLAIMS

1. A vehicle that is driven with output of power to a drive shaft linked with drive wheels, said vehicle comprising:

5 a voltage converter that converts a voltage of an accumulator into a desired form of voltage;

a motor that receives a supply of electric power having the voltage converted by said voltage converter and outputs power to the drive shaft;

10 a slip detection module that detects a slip due to spin of the drive wheels; and

a controller that, in response to detection of a slip by said slip detection module, drives and controls said motor to restrict a torque output to the drive shaft with a view to
15 converging the detected slip, and sets an initial torque for starting cancellation of the restriction of the torque output to the drive shaft, based on the restriction of the torque output, said controller driving and controlling said motor, in response to convergence of the detected slip, to apply the
20 setting of the initial torque and thereby cancel the restriction of the torque output to the drive shaft.

2. A vehicle in accordance with claim 1, wherein said controller sets a resulting torque, which cancels the
25 restriction of the torque output to the drive shaft by a predetermined level, to the initial torque.

3. A vehicle in accordance with either one of claims 1 and 2, wherein said controller drives and controls said motor to restrain a degree of the cancellation of the torque
5 restriction for a preset time period, after cancellation of the restriction of the torque output to the drive shaft to a level of the initial torque.

4. A vehicle in accordance with claim 3, wherein said
10 controller drives and controls said motor to cancel the restriction of the torque output to the drive shaft by a slope of a first time change until elapse of the preset time period and to cancel the torque restriction by a slope of a second time change, which is greater than the slope of the first time
15 change, after elapse of the preset time period.

5. A vehicle in accordance with either one of claims 3 and 4, wherein the preset time period represents a time required to stabilize the voltage-converting operation of said voltage
20 converter.

6. A vehicle in accordance with any one of claims 1 through 5, said vehicle further comprising:
an angular acceleration measurement module that measures
25 an angular acceleration of the drive shaft,
wherein said controller drives and controls said motor .

to restrict the torque output to the drive shaft with a torque restriction value, which is set corresponding to a peak value of the measured angular acceleration in response to detection of a slip by said slip detection control, and sets the initial
5 torque based on the torque restriction value.

7. A vehicle in accordance with any one of claims 1 through 6, wherein said controller carries out control to apply the setting of the initial torque and thereby cancel the
10 restriction of the torque output to the drive shaft, when the slip detected by said slip detection module converges in a short time period.

8. A vehicle in accordance with any one of claims 1 through
15 7, said vehicle further comprising:

a varying road surface condition estimation module that estimates a variation in road surface condition,

wherein said controller carries out control to apply the setting of the initial torque and thereby cancel the
20 restriction of the torque output to the drive shaft, in response to estimation of a variation in road surface condition.

9. A vehicle in accordance with either one of claims 7 and 8, said vehicle further comprising:

25 an angular acceleration measurement module that measures an angular acceleration of the drive shaft,

wherein said controller sets a second initial torque, which has a greater degree of cancellation of the torque restriction against a smaller value of time integral of the measured angular acceleration of the drive shaft in response to detection of a slip by said slip detection module, in the case of no convergence of the slip in the short time period or in the case of estimation of no variation in road surface condition, said controller driving and controlling said motor, in response to convergence of the detected slip, to apply the setting of the second initial torque and thereby cancel the restriction of the torque output to the drive shaft.

10. A control method of a vehicle equipped with a voltage converter that converts a voltage of an accumulator into a desired form of voltage and with a motor that receives a supply of electric power having the converted voltage and outputs power to a drive shaft linked with drive wheels, said control method comprising the steps of:

- (a) detecting a slip due to spin of the drive wheels;
- 20 (b) in response to detection of a slip in said step (a), driving and controlling said motor to restrict a torque output to the drive shaft with a view to converging the detected slip;
- (c) setting an initial torque for starting cancellation of the restriction of the torque output, based on the restriction of the torque output in said step (b); and
- 25 (d) driving and controlling said motor, in response to

convergence of the slip detected in said step (a), to apply the initial torque set in said step (c) and thereby cancel the restriction of the torque output to the drive shaft.